

Success of Antibacterial Treatment

- Following the correct diagnosis of the disease,
 - Appropriate antibiotic selection
 - Appropriate doses
 - Appropriate treatment way
 - Appropriate duration

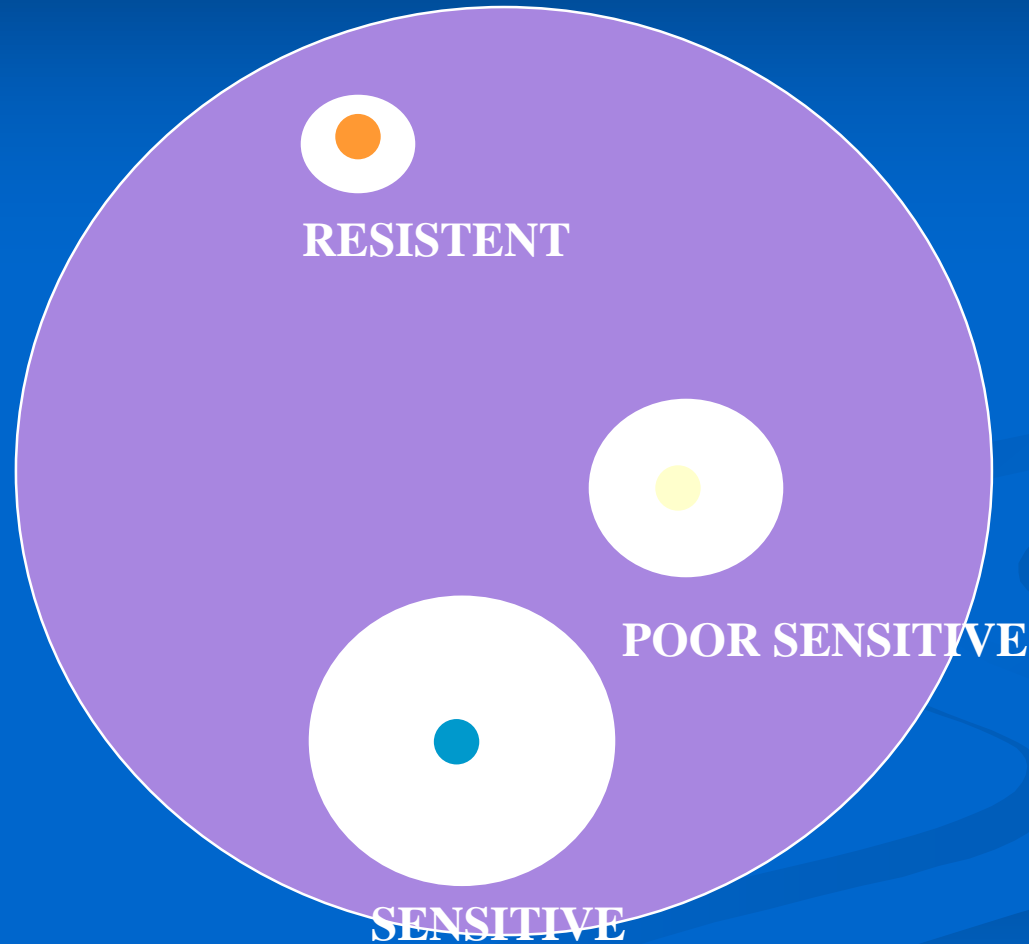
The Reasons of the Failure of Antimicrobial Treatment

- Drug-related causes
 - **Improper drug selection**
 - **Inadequate dosing**
 - Misapplication and poor digestion
 - Poor transition to infection area

Determination of antibiotic sensitivity in laboratory

- Disc Diffusion Method (Antibiogram)
- Tube Dilution Method (MIC)

Antibiogram Test



Sensitivity is proportional with diameter of zone and reflection of the MIC value

The Reasons of the Failure of Antimicrobial Treatment

- Host related causes
 - Immunosuppression
 - Localized infection

The Reasons of the Failure of Antimicrobial Treatment

- **Microorganism related causes**
 - **The development of resistance to the drugs**
 - Superinfection
 - Mix infection and only treat one infection
- **Lab related causes**
 - Wrong report of resistance antibiotics

Mechanisms of antibiotic resistance

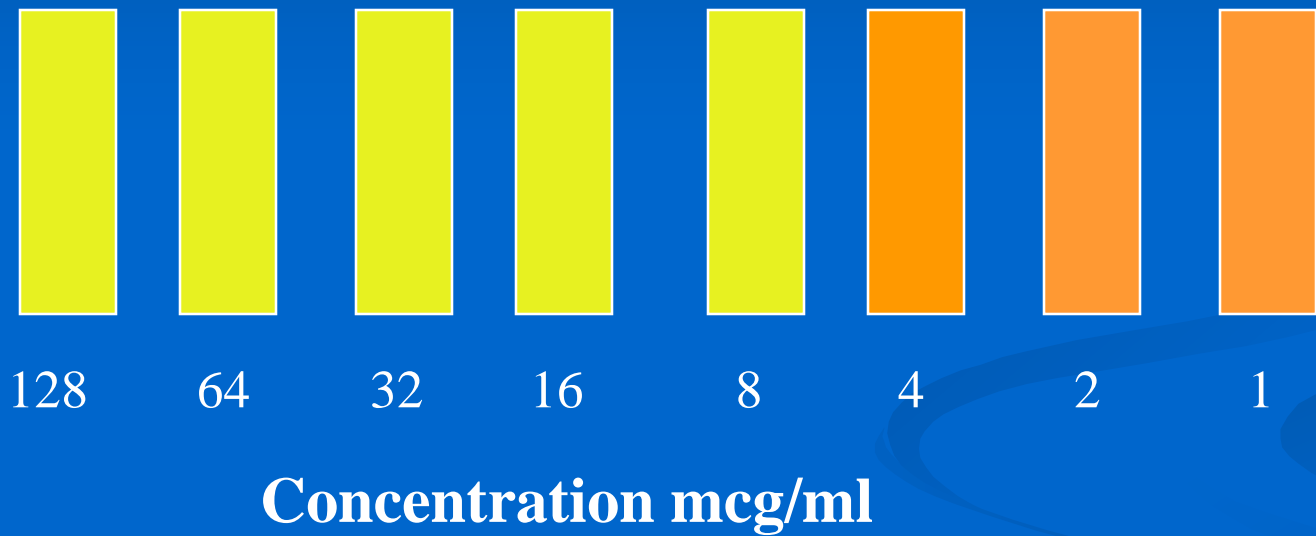
- Reduced permeability
- Genetic variants (mutations, plasmid, transposon)
- The lack of cell wall
- Dependence to antibiotics and antibiotic interactions
- Changes in cell membrane transport system

Bacterial Resistance

- Natural resistance
- Resistance related with mutations
- Plasmid mediated resistance

ANTİBİYOTİK SINIFI	DİRENÇ MEKANİZMASI
Antibiyotiğin etki ettiği bölgede değişiklik	
Aminoglycosidler	Değişmiş ribosomal protein
Beta-lactam antibiyotik	Penisilinin bağlandığı proteinde değişiklik ya da yenilenme
Makrolidler	Ribozomal RNA metylasyonu
Quiolonlar	Değişmiş DNA gyrase
Sulfonamidler	Yeni ilaca duyarlı olmayan enzim
Tetracyclinler	Ribozomal korunma
Trimethoprim	Yeni ilaca duyarlı olmayan enzim
İlacı yok eden mekanizma	
Aminoglycosidler	Molekülün transferini değiştiren enzimler
Beta lactam antibiyotikler	Beta-laktam halkayı parçalayan enzim (beta-laktamase)
İlacın alımında azalma	
Beta-laktam antibiyotikler	Değişmiş hücre duvarı permeabilitesi
Kloramfenikol	Değişmiş hücre duvarı permeabilitesi
Quinolonlar	Değişmiş hücre duvarı permeabilitesi
Tetracyclinler	Değişmiş hücre duvarı permeabilitesi
Trimethoprim	Değişmiş hücre duvarı permeabilitesi

MIC Test



 No growth

 growth

MIC - 8

MIC 50- MIC 90